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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

INVENTOR: Pearce
TITLE: Stacked Cushions
FILING DATE: February 20, 2004
SERIAL NO.: 10/784,127
PATENT NO.: 7,076,822
PUBLICATION NO.: US2004/0226098

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Petition to Expunge

Honorable Commissioner:

This paper is a Petition to Expunge material from the case listed above. The material to be expunged is identified below. The material should be expunged from any and all of (a) the prosecution history, (b) the published patent application, and (c) the issued patent. Expungement is appropriate because the material in question has been found by the OED to be a violation of MPEP 608.01(r).

MATERIAL TO BE EXPUNGED:

In paragraph [0416] of the specification of the published application (no. US2004/0226098), please expunge the following language:

"The elongation at break value was mysteriously omitted from Table I of the '334 patent and other Chen patents. However, reference to Table I of Chen's first two issued patents (the '284 and '213 patents) sets the percent elongation of Chen's 4:1 material at about 1700. Applicant suspects that Chen omitted this data in later patent applications because it was either

inaccurate or Chen's improved materials failed to exhibit improved properties over his earlier materials."

At column 47 lines 59-67 of the patent (no. 7,075,822), please expunge the following language:

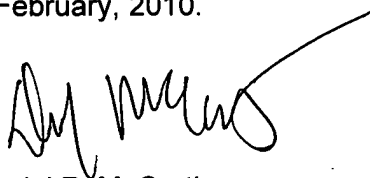
"The elongation at break value was mysteriously omitted from Table I of the '334 patent and other Chen patents. However, reference to Table I of Chen's first two issued patents (the '284 and '213 patents) sets the percent elongation of Chen's 4:1 material at about 1700. Applicant suspects that Chen omitted this data in later patent applications because it was either inaccurate or Chen's improved materials failed to exhibit improved properties over his earlier materials."

REMARKS

The undersigned submitted the above-identified case to the Office. Presently the undersigned is NOT counsel of record in the case and does NOT represent the owner of the case. However, the undersigned has been requested by the OED to pursue removal of the material in order to bring the case into compliance with MPEP 608.01(r). Accordingly, the undersigned respectfully petitions the Office to expunge the identified material.

Prompt consideration of this petition is respectfully requested.

Respectfully submitted this 24 day of February, 2010.



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US007076822B2

(12) **United States Patent**
Pearce

(10) **Patent No.:** **US 7,076,822 B2**
(45) **Date of Patent:** ***Jul. 18, 2006**

(54) **STACKED CUSHIONS**

(75) **Inventor:** **Tony M. Pearce, Alpine, UT (US)**

(73) **Assignee:** **EdiZONE, LC, Alpine, UT (US)**

(*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) **Appl. No.:** **10/784,127**

(22) **Filed:** **Feb. 20, 2004**

(65) **Prior Publication Data**

US 2004/0226098 A1 Nov. 18, 2004

Related U.S. Application Data

(60) Division of application No. 10/059,101, filed on Nov. 8, 2001, which is a continuation-in-part of application No. 09/303,919, filed on May 3, 1999, now Pat. No. 6,173,575, which is a continuation-in-part of application No. 08/968,750, filed on Aug. 13, 1997, now Pat. No. 6,026,527, which is a continuation-in-part of application No. 08/783,413, filed on Jan. 10, 1997, now Pat. No. 5,994,450, which is a continuation-in-part of application No. 08/601,374, filed on Feb. 14, 1996, now Pat. No. 5,749,111, application No. 10/784,127, filed on Feb. 20, 2004, which is a division of application No. 10/059,101, filed on Nov. 8, 2001, which is a continuation-in-part of application No. 09/932,393, filed on Aug. 17, 2001, now Pat. No. 6,865,759, which is a continuation-in-part of application No. 09/303,979, filed on May 3, 1999, now Pat. No. 6,413,458.

(60) Provisional application No. 60/226,726, filed on Aug. 18, 2000.

(51) **Int. Cl.**
A47C 27/00

(2006.01)

(52) **U.S. Cl.** 5/655.5; 5/654

(58) **Field of Classification Search** 5/655.5,
5/654, 653, 644, 909

See application file for complete search history.

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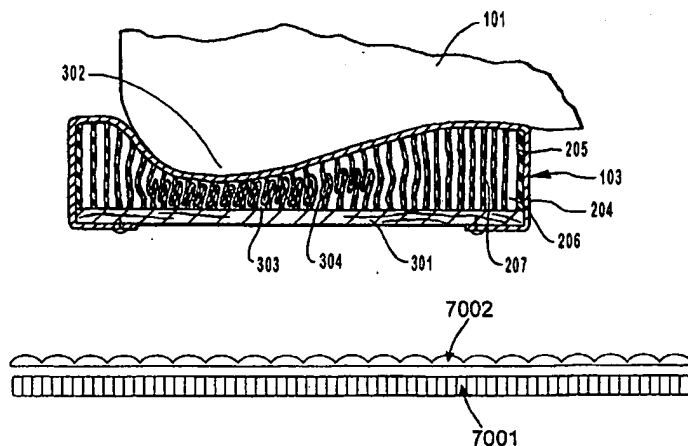
Primary Examiner—Robert G. Santos

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(57) **ABSTRACT**

Stacked cushions, cushioning elements thereof, materials and processes for making the same are disclosed.

62 Claims, 74 Drawing Sheets



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gates up to about 2,400%, which is 700% greater elongation than Chen's 4:1, which is capable of only 1700% elongation (See, e.g., '213 Patent, Table 1, col. 6, lines 18-38). Likewise, the tensile strength at break of Chen's 4:1 gel is only about 4x106 dyne/cm², or 58 psi. Thus, the 8:1 material of Example 1 is at least three times as strong as Chen's 4:1. This is an unexpectedly good result since the conventional wisdom concerning gels is that more oil results in less strength. Applicant doubled the amount of oil used (8:1 compared to 4:1) but achieved more than three times the tensile strength of Chen's material.

Example 2

The material of Example 2 includes five parts LP 150 mineral oil to one part SEPTON 4055.

5:1	Average	High Value
Percent Elongation	1975	2030
PSI at Failure	335	352

A comparison of the 5:1 material of Example 2 to the 4:1 material of Chen's patents shows that Chen's material exhibits much lower elongation and PSI at failure (i.e., tensile strength) values. The material of Example 2 elongates up to about 2,000%, which is about 300% more than Chen's 4:1, which is capable of only 1700% elongation (See, e.g., '213 Patent, Table 1, col. 6, lines 18-38). Likewise, the tensile strength at break of Chen's 4:1 gel is only about 4x106 dyne/cm², which translates to only about 58 psi. Thus, the 5:1 material of Example 2, despite the presence of about 25% more oil than Chen's 4:1 material, is about five-and-a-half times as strong as Chen's 4:1.

Example 3

The material of Example 3 includes three parts LP 150 mineral oil to one part SEPTON 4055.

3:1	Average	High Value
Percent Elongation	1555	1620
PSI at Failure	404	492

A consideration of both Example 2, a material having a 5:1 oil to elastomer ratio, and Example 3, a material having a 3:1 oil to elastomer ratio, indicates that a material with a 4:1 oil to elastomer ratio would compare very favorably to the gel disclosed in U.S. Pat. No. 5,508,334, which issued in the name of John Y. Chen. According to Table I in the '334 patent, Chen's 4:1 KRATON® G-1651-containing material had a breaking strength (i.e., tensile strength) value of 4x106 dyne/cm², which translates to only about 58 psi.

The elongation at break value was mysteriously omitted from Table I of the '334 patent and other Chen patents. However, reference to Table I of Chen's first two issued patents (the '284 and '213 patents) sets the percent elongation of Chen's 4:1 material at about 1700. Applicant suspects that Chen omitted this data in later patent applications because it was either inaccurate or Chen's improved materials failed to exhibit improved properties over his earlier materials.

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In comparison, the percent elongation of a 4:1 example elastomeric gel material for use in the cushions would be at least about 1800, exceeding the elongation of Chen's 4:1 material by about 100% or more. Similarly, the tensile strength of a 4:1 material example for use in the cushions hereof would be at least about 350 psi, and probably in the 370 to 375 psi range. Thus, a example elastomeric gel cushioning medium for use in the cushions with an oil to elastomer ratio of about 4:1 would be about six times as strong as Chen's most example 4:1 gel.

The following Examples 4 through 11 have been included to demonstrate the usefulness of various plasticizing oils in the example elastomeric gel material.

Example 4

The material of Example 4 included eight parts of a plasticizer mixture to one part SEPTON 4055. The eight parts plasticizer mixture included about 5.3 parts REGAL-REZ® 1018 and about 2.8 parts DUOPRIME(g) 90 mineral oil.

8:1	Average	High Value
Percent Elongation	2480	2520
PSI at Failure	187	195

Example 5

The material of Example 5 included eight parts of EDELEX® 27 oil to one part SEPTON 4055. EDELEX® 27 has an aromatic content of about 1%, which would be expected to slightly decrease the tensile strength of the material.

8:1	Average	High Value
Percent Elongation	2105	2150
PSI at Failure	144	154
Percent oil bleed	0.34	

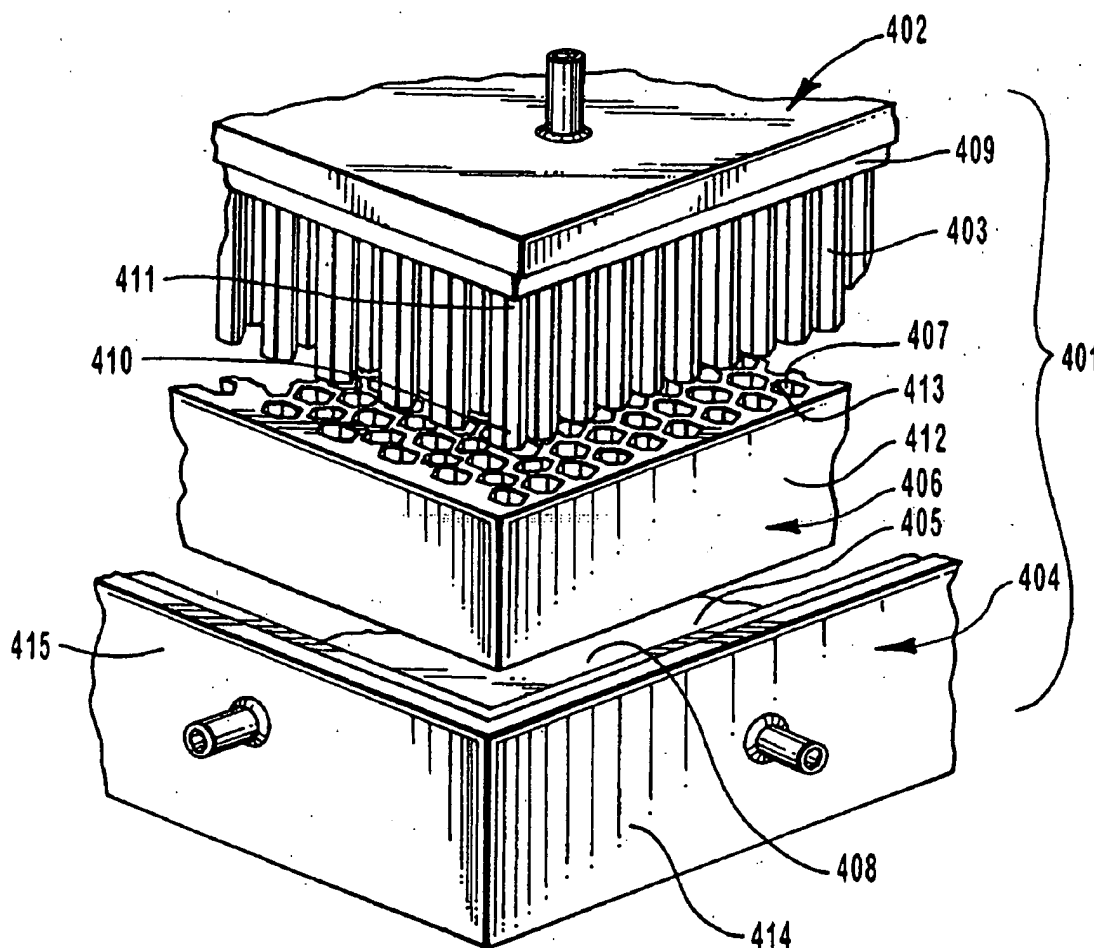
Example 6

The material of Example 6 included eight parts of DUOPRIMEO 55 mineral oil to one part SEPTON 4055.

8:1	Average	High Value
Percent Elongation	1940	2055
PSI at Failure	280	298
Percent oil bleed	0.29	



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3:1	Average	High Value
Percent Elongation	1555	1620
PSI at Failure	404	492

[0415] A consideration of both Example 2, a material having a 5:1 oil to elastomer ratio, and Example 3, a material having a 3:1 oil to elastomer ratio, indicates that a material with a 4:1 oil to elastomer ratio would compare very favorably to the gel disclosed in U.S. Pat. No. 5,508,334, which issued in the name of John Y. Chen. According to Table I in the '334 patent, Chen's 4:1 KRATON® G-1651-containing material had a breaking strength (i.e., tensile strength) value of 4×10^6 dyne/cm², which translates to only about 58 psi.

[0416] The elongation at break value was mysteriously omitted from Table I of the '334 patent and other Chen patents. However, reference to Table I of Chen's first two issued patents (the '284 and '213 patents) sets the percent elongation of Chen's 4:1 material at about 1700. Applicant suspects that Chen omitted this data in later patent applications because it was either inaccurate or Chen's improved materials failed to exhibit improved properties over his earlier materials.

[0417] In comparison, the percent elongation of a 4:1 example elastomeric gel material for use in the cushions would be at least about 1800, exceeding the elongation of Chen's 4:1 material by about 100% or more. Similarly, the tensile strength of a 4:1 material example for use in the cushions hereof would be at least about 350 psi, and probably in the 370 to 375 psi range. Thus, a example elastomeric gel cushioning medium for use in the cushions with an oil to elastomer ratio of about 4:1 would be about six times as strong as Chen's most example 4:1 gel.

[0418] The following Examples 4 through 11 have been included to demonstrate the usefulness of various plasticizing oils in the example elastomeric gel material.

Example 4

[0419] The material of Example 4 included eight parts of a plasticizer mixture to one part SEPTON 4055. The eight parts plasticizer mixture included about 5.3 parts REGAL-REZ® 1018 and about 2.8 parts DUOPRIME(g) 90 mineral oil.

8:1	Average	High Value
Percent Elongation	2480	2520
PSI at Failure	187	195

Example 5

[0420] The material of Example 5 included eight parts of EDELEX® 27 oil to one part SEPTON 4055. EDELEX® 27 has an aromatic content of about 1%, which would be expected to slightly decrease the tensile strength of the material.

8:1	Average	High Value
Percent Elongation	2105	2150
PSI at Failure	144	154
Percent oil bleed	0.34	

Example 6

[0421] The material of Example 6 included eight parts of DUOPRIME® 55 mineral oil to one part SEPTON 4055.

8:1	Average	High Value
Percent Elongation	1940	2055
PSI at Failure	280	298
Percent oil bleed	0.29	

Example 7

[0422] The material of Example 7 included eight parts of DUOPRIME® 70 mineral oil to one part SEPTON 4055.

8:1	Average	High Value
Percent Elongation	2000	2030
PSI at Failure	250	275
Percent oil bleed	0.41	

Example 8

[0423] The material of Example 8 included eight parts of DUOPRIME® 90 mineral oil to one part SEPTON 4055.

8:1	Average	High Value
Percent Elongation	2090	2125
PSI at Failure	306	311
Percent oil bleed	0.35	

Example 9

[0424] The material of Example 9 included eight parts of DUOPRIME® 200 mineral oil to one part SEPTON 4055.

8:1	Average	High Value
Percent Elongation	1970	2040
PSI at Failure	200	228
Percent oil bleed	0.20	

Example 10

[0425] The material of Example 10 included eight parts of DUOPRIME® 350 mineral oil to one part SEPTON 4055.